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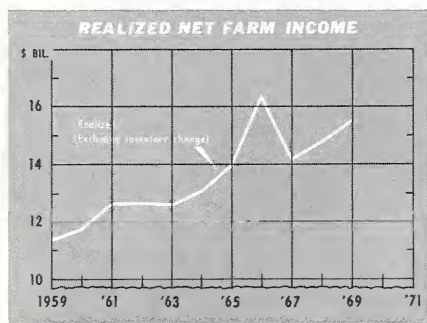
HOW DEMAND AFFECTS FARMING

GROWING MARKETS, BETTER INCOMES BOOST DEMAND

Incomes to farmers, especially livestock producers, have improved in 1969. We asked USDA economist J. Dawson Ahalt to explain the current situation and how economic developments affect farm income and prices. Here's his analysis:

Realized net farm income in the first half of this year was at a \$15.6 billion annual rate, up 7 percent from the first half of 1968. This gain is expected to hold for the second half, too.

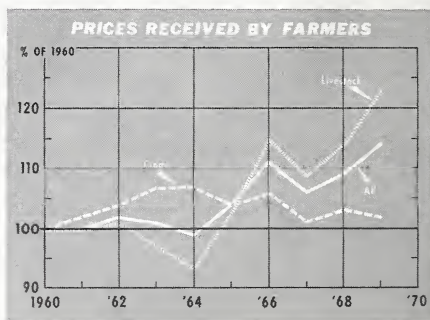
Rising realized net farm income in 1968 and 1969 resumes a trend which held through most of the 1960's (see chart).



This increase resulted from a large rise in cash receipts and government payments that more than offset increasing production costs. Rising farm output and growing markets have helped raise cash receipts. Here's how:

GROWING MARKETS take a larger volume of farm products, increasing farmers' cash receipts. The domestic food market has increased about in line with population growth. Export markets have increased, too, until the past 2 years.

With markets expanding, prices for farm products have contributed to the pickup in cash receipts. First half 1969 crop prices were just slightly higher, but livestock prices were nearly a fourth above those in 1960 (see chart below).



Although farm prices have increased, they tend to remain low relative to other prices, except during periods such as wartime. This is due to rapid growth in farm output which has often outpaced expansion in markets, particularly for crops.

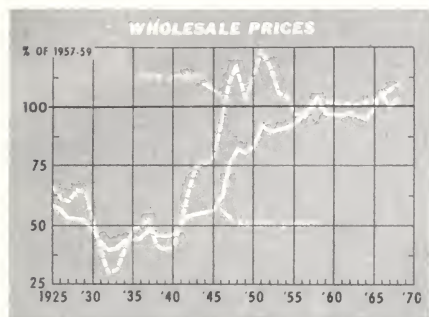
Farm prices tend to react to changes in supply, consumer buying ability, and preferences.

And, they react more sharply than do prices of other goods. This happens because, in the short run, the overall requirement for farm products is about fixed by population size. A small decrease in food supplies drives prices up, since the need for food doesn't decline.

This happened in April-June, when beef and hog marketings de-

clined temporarily, causing an upsurge in meat animal prices.

A small supply increase brings an opposite price reaction. Since demand can't be increased to consume the excess, prices fall. The sharper ups and downs of farm versus other prices is shown below.



SUPPLY AND DEMAND

changes affect some farm products more than others. Consumers substitute for some items when prices get out of line, and they buy costlier foods as their income rises. Live-stock products, some fruits and vegetables, and processed foods seem most responsive to these changes.

During the 1960's, the supply-demand situation differed between crops and livestock products.

People can afford, and are buying, more meats. So producers in most recent years have expanded output without depressing prices. Cash receipts to livestock producers climbed 35 percent in 1960-68.

This year, demand for livestock products is continuing strong, and with supplies increasing only modestly, prices are averaging above a year earlier.

Demand for crops, however, is less responsive to changes in prices and income. So expansion in crop

production has tended to put downward pressure on prices.

Government programs and, until the last 2 years, expanding exports, have helped maintain prices. Thus with the volume of crop marketings increasing, crop producer's cash receipts rose about one-fourth during 1960-68.

So far this year, lagging exports coupled with large supplies for many crops have held the crop price average 1 percent below 1968.

Supplies of crops, with average growing conditions, will continue large and prices will likely stay under some downward pressure. But loan programs for major crops will tend to limit price declines.

ECONOMIC PROSPERITY has contributed to stronger farm prices. When consumers bring more dollars to the marketplace, several things occur. First, assuming supplies remain steady, prices tend to rise.

Second, people spend more on higher priced items, sometimes increasing demand faster than supplies can accommodate, pushing up prices.

The boom of the 1960's put more buying power into consumer's pockets than during any time in our history. Consumer after-tax income increases during the 1960-68 period averaged a little over 6½ percent per year. But from 1963 on, the advance was nearly 8 percent a year.

This year, too, incomes are continuing upward. The outlook through early 1970 points to a somewhat slower increase in gross national product than January-June 1969. But gains in consumers' after-tax incomes are expected to be maintained near those of first-half 1969.

HIGH-LYSINE CORN FIGHTS MALNUTRITION

Mario, a six-year-old boy from Colombia, recovered from extreme malnutrition using 100 percent protein from plant sources. Mario's diet was based on "high-lysine," or opaque-2 corn.

The Rockefeller Foundation reports this is the first time a patient has been known to return to nutritional balance using plant sources only.

"High-lysine" corn began in 1930 when Cornell University scientists discovered the opaque-2 recessive gene in certain types of corn. In

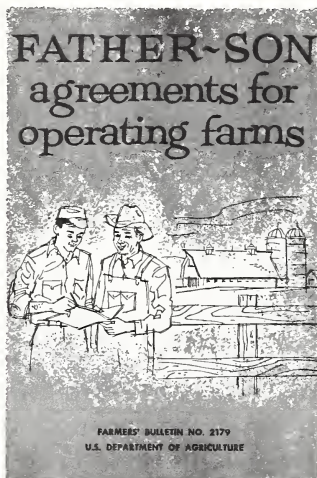
1963, Purdue Agricultural Experiment Station scientists introduced the gene into several lines of corn to increase corn's protein content.

Purdue sent 25 seeds to Colombia, which were planted in early 1965. A crop had developed sufficiently by 1967 for production of flour. The flour was used to make popular Colombian foods, such as *arepa*, a pancake-like bread, which was used in Mario's recovery.

Doctors at the University of Valley medical clinic in Candelaria, Colombia, credit "high-lysine" corn in full for Mario's recovery.

The Rockefeller Foundation describes "high-lysine" corn in Colombian diets as "the difference between life and death for millions of children."

FREE PARTNERSHIP GUIDE



When a farm father gives his young son a calf, it's not just a gift. It's often a first step in educating a future farmer to management responsibilities.

When the boy grows up, he may solve the father's retirement problem by gradually taking over the management of the farm. The older man often retains a financial interest and his experience and understanding help keep farm organization stable.

For descriptions of how to avoid legal and family problems that can arise out of operating and transfer arrangements, read "Father-Son Agreements."

To get a free copy, send your name, address, and zipcode, to Editor, Agricultural Situation, OMS, USDA, Washington, D.C. 20250.

WHITE CORN SURVEY DUE

"The short crop of white corn last year left many local producers without much bargaining power, since they had no accurate estimate of how short the crop was." A Kentucky extension agent wrote this to agricultural statistician James Koepper, of the Kentucky Crop and Livestock Reporting Service.

In response to this and many other requests he received, Koepper will conduct a special white corn survey this fall. (White corn is presently included with yellow corn in the SRS national estimating program. But individual State Crop Reporting Services may collect special data when there is sufficient interest and funds.)

Kentucky is one of 18 States east of the Mississippi which produce white corn. No one knows definitely how much. But an industry spokesman estimates that food products such as cereal, grits, and meal use some 40 million bushels. He places farm value at \$45 to \$50 million.

Normally, Koepper says, Kentucky white corn brings from a few cents up to 15 or 20 cents per bushel more than yellow corn. But last year's crop was apparently well short of requirements, and the price this spring soared to \$3.40-\$3.60 per bushel.

Were farmers aware of the impending short crop? Could they plan ahead and take advantage of the high price situation? Did farmers then over react this spring by planting too large a crop? If so, will prices tumble? The corn survey, like other SRS estimating pro-



Kentucky State Statistician Jim Koepper, left, discusses the white corn situation with Elkton farmer and long time crop reporter Earl Welborn, Jr.

grams, helps remove these shadow areas from farming.

Preliminary data on white corn was obtained by Koepper's statisticians in their June Enumerative survey. This identified the main growing area in western Kentucky, primarily Henderson, Union, and Davies Counties.

About harvest time, questionnaires will be mailed to some 5,000 Kentucky corn producers on the regular crop reporter rolls. In this first white corn survey, questions will concern acreage, production, price, value, utilization, storage, marketing, rate of planting, and other elements of this specialized crop. There will be followup mailings to insure greater response and better information for making estimates.



ABOVE: Farmer loads plane with wheat for air-seeding; **LEFT:** Young air-seeded wheat in corn stubble. **BELOW LEFT:** No-till corn flourishes in wheat field. **BELOW:** No-till planter uses scalloped coulter to loosen soil, followed by offset disc to lay fertilizer. **BOTTOM:** Statistician Jim Koepper examines no-till soybeans in wheat residue.



SPOTLIGHT ON KENTUCKY:

NEW PLANTING IDEAS PAYING OFF

Many Kentucky farmers have quit cultivating corn, soybeans, and sorghum. And a growing number are through drilling wheat, oats, and barley. They've found better ways to plant.

No tillage planting began in 1962. Herndon County farmer and crop reporter, Harry Young, Jr., started it by planting just three-fourths acres that way.

In 1965, Hickman County farmer Roy Dillard seeded 500 acres of wheat by crop-spraying plane—right onto standing soybeans.

Both ideas have caught on fast. James Koepper, chief of the Kentucky Crop Reporting Service, has kept a close watch on developments. He estimates 100,000 acres of no-till row crops planted this year, and notes that aerial seeded acreage has doubled in each of the last 3 years.

Technology opened the way for no-till farming: effective planters, and contact herbicides to stop old-crop growth without hurting newly planted row crops.

The no-till type planter opens a $\frac{2}{3}$ -inch strip in sod with a fluted coulter, then lays in seed, fertilizer, and insecticide. A residual herbicide is used later to keep the seedbed weed free.

Koepper reports that Kentucky farmers plant with no-till into many crops, from grass and legume sods to corn, soybeans, and grains.

The results speak for themselves:—Yields as good as with conventional tillage normally, and better in dry years.

—Better weed control, moisture retention, and soil conservation.

—Two crops yearly in Christian and other border counties where only one was grown before.

—Prompt planting of up to 1,000 acres of corn.

—Planting of row crops in rolling western Kentucky where ordinary cultivation is impossible.

Seeding from a low-flying plane, nearly as popular as no-till planting in Kentucky, offers advantages over conventional drill-seeding.

—Economy. Custom application costs from \$1.85 to \$2.25 per acre depending on terrain. Custom grain drilling costs are about the same.

—Timeliness. For example, wheat is air-seeded in late September to mid-October, a month or more ahead of drilled wheat.

—Preharvest seeding. Seeds go right into mature corn and soybeans which have begun to shed. At harvest, combines won't hurt young wheat, and leave a residue of mulch.

—Double-cropping. Air-seeded grains are harvested early, so fields are ready for a second crop in June.

—Quick cover. Air-seeding provides early vegetative cover for winter pasture and erosion control.

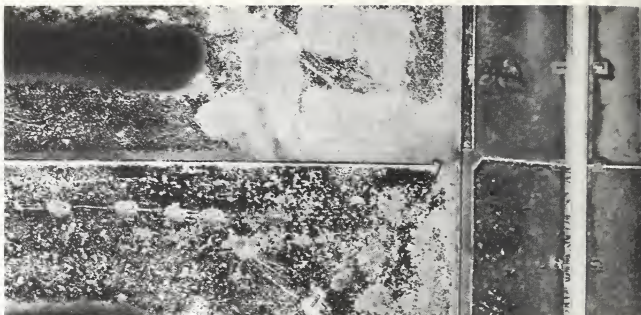
No-till and air seeding can be used together.

Bob Wade, Simpson County crop reporter, no-tills soybeans in 20-inch rows, in wheat, oats, and barley.

Last year, soybean planters followed wheat combines on June 21. On September 12, Bob air-seeded oats in standing soybeans. On October 14, soybeans were combined.

Bob figures the no-till method cost him \$6 to \$8 less per acre than a plow-disc-harrow sequence.

LIVESTOCK SURVEYED BY AERIAL PHOTOS



Statistical Reporting Service researchers Paul Hurt and Donald Von Steen are pioneering aerial surveys of livestock. Flying over a four-county area of southern Idaho this June, they made aerial photos of pastures, ranges, and feedlots where livestock were located.



Rangeland in the Twin Falls area.

Counts of cattle and sheep in these photos yield the same kind of information SRS obtains through personal interviews during June and December livestock surveys.

Preliminary results show that interpreters can identify 95 percent of the cattle actually present in the areas photographed. Final results of the experiment will determine areas for further research.

MAKING PHOTO FLIGHTS

Hurt and Von Steen selected tracts of land containing livestock June 1, and a group of tracts where no livestock was reported.

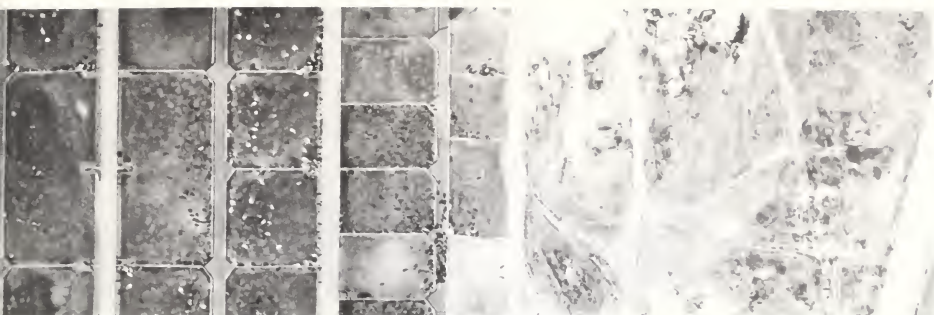
The tracts were located in Twin Falls, Minidoka, Jerome, and Cassia Counties on Idaho's southern border. Irrigated by water from the Snake River or from wells, the area's farms produce wheat, alfalfa, beans, and sugarbeets. Cow-calf spreads are the region's most popular livestock enterprise. There are also feedlots and several large sheep ranches.

The single-engined plane used by the researchers had two cameras. A forward aerial camera was loaded with black and white film, set to take overlapping photos, scaled at 1 inch to 500 feet. The overlap produces a stereoscopic effect. The rear camera, loaded with color film, took pictures scaled at 1 inch to 250 feet.

The flights were made in early June after waiting out several rainy days. The crew covered the tracts—totaling over 200,000 acres—in 20 hours flight time.

WHAT THE PHOTOS SHOWED

The film was sent for interpretation to the Forestry School labs of the University of California at Berkeley.



Idaho feedlot photographed for survey. One inch equals 250 feet.

Photo interpreters found that cattle showed up well, especially on stereo pictures. It was even possible to count cattle photographed in sparse woods.

Color photos worked best for counting sheep, which are harder to identify because of their size and color.

Proper weather conditions are an important factor. Rain or heavy overcast could hinder scheduled flights.

Good contrast between livestock and background is important. Lush green pasture is best for identification. Cattle contrast well against snow, for example, but sheep can't be consistently spotted on snow. Neither cattle nor sheep show up clearly on brown pasture during late fall and winter.

A big problem is identifying young animals, important for Calf Crop, Lamb Crop and Livestock Inventory Reports. Special viewing equipment makes distinguishing very young from mature animals possible under good conditions. Better film and lenses are needed, though, to allow for greater magnification. This would enable SRS to classify size more precisely.

THE FUTURE'S BRIGHT

The preliminary success of the Idaho experiment seems to point to a bright future for surveying livestock from the air.

What's needed now, according to SRS research director Bill Kibler, is more powerful photographic equipment.

High resolution lenses, available although very costly, can photograph large areas from high altitudes, yet still preserve sharp details of livestock below.

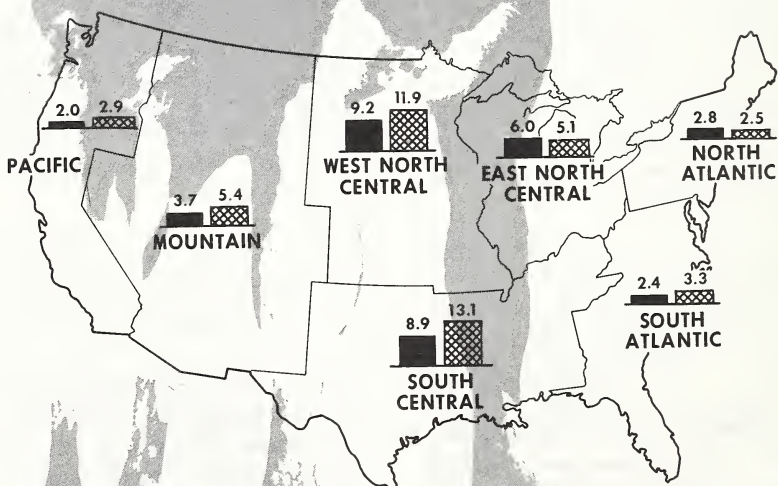
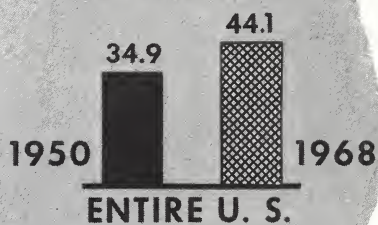
Making livestock estimates much more accurate than they are already will require *doubling* the number of livestock producers contacted in the June and December surveys. That's why aerial surveys are important. They could increase coverage more economically than with the use of personal interviews.

Aerial surveys also minimize the time livestock producers—especially the large-scale ranchers—spend answering questionnaires or being interviewed.

Kibler points out another idea: Tracts of rangeland photographed several times during a season, to get a picture of short-term changes in livestock numbers and location. This might even lead to more frequent livestock number reports.

CALF CROP'S CHANGING

CALF CROP IN MILLIONS



Waxing demand for beef products and waning demand for dairy products are related to a shifting of the calf crop, regionally.

Last year the U.S. calf crop of 44 million head was 26 percent bigger than in 1950. Beef calves more than doubled, while dairy calves dropped nearly 40 percent.

The importance of milk-producing areas in calf production has decreased. Beef areas have accounted for a much larger share of the total in the past two decades.

For example, East North Central States produced 17 percent of the calf crop in 1950, but only 12 percent last year. The North Atlantic Region also has dropped in importance. Sharpest gains in the U.S. calf crop have been in the beef producing South Central and Mountain States.

Since 1950 calf slaughter has about equaled half the estimated dairy calf crop. Despite much year-to-year variation, the dairy calf crop and total calf slaughter are making similar declines. Both are likely to continue to decline. Further reductions in numbers of daily cattle are expected. And prospects for above average feeder cattle prices are apt to discourage increases in sales of beef calves for slaughter.

Numbers of calves sent to slaughter have declined in all regions except the South Atlantic where slaughter in 1968 was about the same as in the early 1950's. And calf slaughter in commercial plants in all regions last year accounted for a smaller share of the crop than in 1950.

Average weights of commercially slaughtered calves were well below the U.S. average of 229 pounds in the Northwest because of the proportion of veal calves sold from

dairy herds. Weights averaged above 400 pounds in South Central and Mountain States.

Most of the difference resulted from production practices. A dairyman usually will send a bull calf to market as soon as feasible, but a rancher with a cow-calf operation will wait until weaning time (generally in the fall) to decide on calf marketing.

Calf slaughter weights have trended upward, generally, since 1950. Increases are largest where slaughter of baby calves has gained importance.

BEEF FACTS

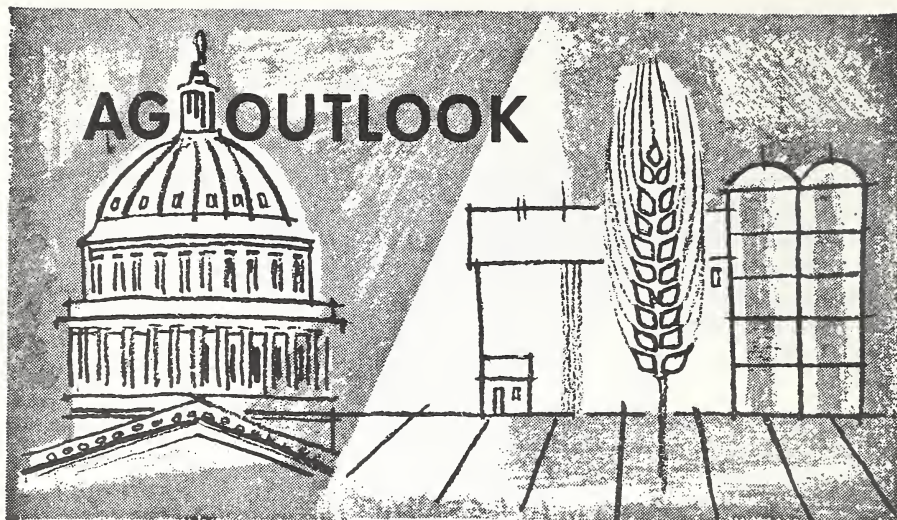
Keeping shoppers supplied with beef has meant increasing beef output. Since 1946, production has more than doubled. Last year's production totaled 21 billion pounds.

Of this, 15 billion pounds was fed beef. Since 1946, fed beef output has more than quadrupled.

Most fed beef grades Choice, and Choice beef output has risen from a fourth of the total in 1946 to over half today.

The quantity of lower grade beef produced has not increased, remaining at 5 billion pounds yearly for the last 2 decades. However, use of lower grade beef for hamburger, canned meats and other products has grown.

Some lower grade beef is imported. During the 1960's, imports have ranged between 700 million and 1.1 billion pounds. Last year, with higher U.S. beef prices, beef imports jumped 10 percent, reaching a product weight of over 1 billion pounds, highest since 1963.



Based on Information Available September 1, 1969

FEEDGRAIN OUTLOOK

Domestic use of feed grains during 1969-70 season is likely to at least equal last season's record high. Exports should recover from the low level of the past year.

In September, the 1969 feed grain crop was indicated to be slightly below 1968. Considering demand strength, this would keep fall and winter prices above the same periods of 1968-69. Because of the lateness of the corn crop in some major areas, the final outcome will be more dependant than usual on fall weather conditions.

HAY PRICES TO RISE

September forecast of 1969 hay crop pointed to a slightly smaller supply than in the 1968-69 season. Regionally, the Western crop is forecast higher, but Southern and Eastern States will produce less than last year. With the slightly smaller supply, and strong demand, livestock men will pay a little more for hay in the 1969-70 than in the current season.

MEAL PRICES DOWN

Soybean meal feeding in 1968-69 has been record large. August price was \$77 per ton at Decatur, \$7.50 less than a year earlier. With larger production in prospect, feeding will increase further in the 1969-70 season. Prices will likely average below 1968-69 levels.

FOOD PRICES

The rise in retail food prices this year will likely be the largest since 1966, when there was a 5 percent increase. In the first 7 months of 1969, all retail foods averaged 4½ percent over the like period of 1968, including a 4 percent increase in grocery foods and a 6 percent gain in away-from-home eating prices.

Grocers have been finding some consumer resistance to price rises . . . May be forced to absorb some cost increases instead of passing them on to consumers.

FOOD SPENDING

Total spending for retail foods in 1969 is expected to be 5 percent more than in 1968 . . . Mostly due to population growth and inflation, since consumption per person will change little . . . Last year, spending rose 6 percent.

RENTAL IS CHANGING

Heavy demand is changing the rented farmland market. Farmers are renting expansion land twice as fast as they are buying it. With heavy competition for available acreage, landlords will look for more cash rentals, longer-term leases, and an escalator clause to keep rents moving up with expected appreciation in land values.

HEAVY BREEDS INCREASE

Statistical Reporting Service estimates 2 percent more heavy-breed turkeys raised this year than in 1968. Biggest increases come from producers in east coast States. But light-breed output will be down 14 percent. Cutbacks drastic in many States.

SALES MUSHROOM

Mushroom production for the year ended June 30 gained nearly 5 percent over the previous season. Prices averaged about 2 cents per pound more, according to SRS. Growers say they'll expand square footage of growing area 1 percent in the 1969-70 season.

COTTON STOCKS STEADY

Cotton season began August 1, with 6½ million bales carried over. That's about the same as in August 1968 . . . and the August 1970 carryover may be little different. Stronger mill use and exports are expected to offset increased production.

CO-OP MONTH

October is co-op month. The theme, Progress Through People, points out the human side of the co-op story. A third of U.S. families belong to 50,000 co-ops of all kinds.



PROGRESS THROUGH PEOPLE

FATS AND OILS: USE GROWS DESPITE COMPETITION

The fats and oils business is fiercely competitive. Butter, lard, and vegetable oils battle for food outlets. Petrochemicals vie with fats and oils for industrial uses. Urea challenges oilseed meals and fats used in feed.

But business is growing. Since 1947, total fats and oils use has increased from 10.3 to 15.1 billion pounds. Most growth has been in food uses, which take about 10 billion pounds a year.

Food fats and oils compete on the basis of price and availability. Since 1947, butter and lard use has dropped sharply. Corn oil and cottonseed oil have smaller market shares, while soybean oil utilization has boomed.

Substitution of other products for fats and oils in foods has been limited—mainly to bakery products, a 2-billion pound outlet.

Emulsifiers, used by bakers primarily to allow mixing of shortening with liquids in baked goods, also control the fat requirements. By using a larger percentage of emulsifier, bakers have reduced the average fat content of bread from 4 to 2 percent over the last 3 years.

Synthetics and substitutes for fats and oils have hit industrial outlets much harder. Even so, total industrial use of fats and oils has grown from 4 to 5 million pounds since 1947.

Cheaper, more dependable, and in some cases more effective, petroleum byproducts have displaced natural oils. Soap, once the prime outlet, has been largely replaced by detergents, and latex and alkyds are replacing soybean and linseed oils rapidly in paints, inks, and putty. Glycerine, a soap byproduct, now is also produced synthetically.

Recently, fatty acids, used in making soap, detergent, wax, and rubber, were a growing market for inedible tallow and grease. But tall oil, an inexpensive byproduct of papermaking, is fast taking over this market.

Some nonfood uses of fats and oils are booming. In 15 years, the market for inedible tallow and grease used in feed has grown nearly 10 fold. It approached 1 billion pounds in 1967.

Linseed oil has found a new use in concrete roadbeds, to prevent surface erosion. Oilseed meal output is 2½ times larger today than 20 years ago. Most is soybean meal. Oilseed meals dominate the market for high protein feed sources, but urea is a growing competitor. In 1966, cattle and sheep consumed, nearly 200,000 tons of urea, equivalent to meal coming from 1.9 million soybean acres.

In the future, urea, as well as high-lysine corn, synthetic amino acids, and even protein from petroleum, will challenge feed use of oilseed meals.

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BETTER RED CROPS

Communist areas appear headed for a good agricultural year. Prospects looked like this at mid-1969:

U.S.S.R.: The Russian winter damaged grain crops, but record areas sown to spring wheat and other grains, plus good spring and summer weather, should make up for it. Meat output slumped in early 1969, but should climb due to an expected rise in feed grain supplies.

East Europe: Crops are growing well in southern countries, but prospects are dimmer in Czechoslovakia, East Germany, and Poland. Livestock inventories, down earlier, are expected to rise later on.

Mainland China: Good winter and spring wheat crops are expected. The early rice crop—about a third of total production—is doing less well because of a cold winter, spring floods, and a tidal wave.

Cuba: Castro called this year's sugar crop the "agony of Cuba." Poor weather and lack of labor have been sighted as reasons for a short

crop. Cuba may have difficulty meeting its export commitments.

U.S. EXPORTS DOWN

U.S. exports of farm products totaled \$6.2 billion in calendar 1968, down about 2.5 percent from 1967,

Sales advanced for oilseeds, rice, tobacco, dairy products, and vegetables. Sales were reduced for wheat, and feed grains, cotton, fruits, and many animal products.

Commercial exports fell \$65 million from 1967. Government programs slipped \$87 million. Factors in the trade decline include:

—A large grain crop in most foreign countries, especially in Asia.

—Use of lower cost substitutes for feed grains for animal feeding throughout the EEC.

—Measures to reduce butter stocks in Europe which have depressed the world trade in oilseeds.

—Low-priced sunflower seed oil from Eastern Europe took a large share of the Western European vegetable oil market.

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